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DONALD A. WILLIAMS
CHIEF, SOIL CONSERVATION SERVICE

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★ THIS MONTH ★

WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. The printing of this publication has been approved by the Bureau of the Budget, July 29, 1954. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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SALUTE!—Diners on the Seaboard Air Line Railroad recently were greeted with a back cover on their menus dealing with soil and water conservation. "Through your window you have seen dust storms . . . fields slashed by gullies . . . cut-over, burned-over forests . . . denuded ranges . . . and swollen, soil-laden rivers spilling destruction across the lowlands."

The article was headed: "We Salute America's 2,600 Soil Conservation Districts."

The page concluded with the statement: "Soil conservation is good business."

LOSSES UNDER CULTIVATION.—J. L. Doughty and coworkers have reported that the brown soils of the prairies of western Canada lose organic matter and nitrogen rapidly when in cultivation. As much as 26 percent of the organic matter and 33 percent of the nitrogen were lost from soils that had been in cultivation for only 14 years.

Editors are invited to reprint material originating in this magazine.

FRONT COVER. — Alternate contour strips of corn and recently mowed hay crops provide this conservation farming view from the windows of the T. G. Ragsdale home at Brandy Station near Culpeper, Va. Ragsdale, a supervisor of the Culpeper Soil Conservation District, operates the Beauregard Farm, owned by J. C. Miller, of Richmond. Also on contour is the family vegetable and herb garden. The photograph was made by a staff photographer of the U. S. Department of Agriculture.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Ringnecked pheasants are largely limited in Ohio to the grain farming areas. Intensive farming, clipping of grain stubble, high-speed mowers, and lack of nesting cover have contributed to reduced populations. Studies are under way to develop new strains of pheasants better adapted to marginal range and to changed farming conditions.

Managing Wildlife in Ohio

A distinguished biologist speaks out in favor of providing more undisturbed cover on our lands. A prime aim of wildlife management is to create and maintain favorable conditions for fish, fur and fowl production on farms.

By CHARLES A. DAMBACH

DURING the depression years of the early thirties, when thousands of acres of cropland were idle, northwestern Ohio was considered one of the top pheasant areas in the United States. Movie stars made well-publicised trips to hunt there on controlled areas. Officials from nearby states came to see how the "pheasant crop" was produced and handled.

A few years later newscaster Lowell Thomas lauded the crappie fishing in newly created Senecaville Reservoir. Thousands came and caught crappies in abundance, some measuring 17 to 19 inches in length. Then, a scant decade

Note.—The author is chief, Division of Wildlife, Department of Natural Resources, Columbus 21, Ohio.

later, in the midst of a population boom and with less fishing area per angler than any other state but one, Ohio took the lid off fishing restrictions. This action confounded many conservationists the country over and brewed a storm of protest from a very small minority of fishermen in the Buckeye State.

In 1913 William T. Hornaday predicted that Ohio soon would become a gameless state and castigated her hunters, calling them "shooting Shylocks (who) want the last pound of flesh from wildlife." Hornaday has since been proved wrong about Ohio game populations but let no one conclude that wildlife in Ohio is in a state of bliss. It isn't. While some animals are faring well, others—particularly those dependent on agricultural practices—are nearly on the ropes. This article is an account of what the state is attempting to do to maintain wildlife resources for the benefit of all its people.

A picture of Ohio from a wildlife administrator's point of view should help the reader understand this program. The state is small—thirty-fourth in total land area and forty-fourth, almost last, in water area in the United States. But the state is large in population—fifth in the United States. It's eighth in population per square mile; fifth to eighth in the annual sale of fishing licenses; forty-seventh in water area per fisherman, and forty-seventh in land area per hunter.

Most of the land area, 85 percent, is in farmland. Nine percent of this farm area is in woods. Four percent of Ohio is in cities, towns and highways. There are 3 million acres of forested land representing 11 percent of the total land area. This is mostly in the hilly eastern and southern part of the state. During the last 35 years there has been a notable loss of land capable of supporting wildlife and a 300 percent increase of sportsmen. Our population is still increasing at the rate of 2 percent each year. Most of the impounded water in the state, 96 percent, is manmade and subject to intensive use for domestic, industrial and agricultural purposes. Many of the natural streams are seriously polluted with silt, industrial and chemical wastes.

On the bright side is a fauna of great variety. Some 700 kinds of animals have been reported from the state throughout its history. Of these, a good variety are abundant enough to provide pleasure to the fishermen, hunter and nature lover. Some have long since vanished and others have occurred but rarely. Several species—notably the cottontail rabbit, bobwhite quail, the introduced ring-necked pheasant, muskrats, raccoon, a host of field birds and small mammals, pond fishes like the bass and crappies and bluegills and catfishes—undoubtedly are more abundant than when the state was first

Thousands of farm ponds have been built by Ohio farmers in cooperation with soil conservation districts. The Division of Wildlife has provided thousands of woodchuck boxes to make the ponds habitable to these colorful birds.

settled. Some species once vanished are making a comeback; notably beaver, whitetailed deer, ruffed grouse and the recently reintroduced wild turkey. These animals have demonstrated remarkable capacity to live in face of constant pressure by man, his dogs and cats and his farm machines.

To this complex problem should be added the fact that Ohioans, with notable exceptions, are remarkably well informed on the basic principles governing the welfare of wild animals, are remarkably tolerant in their demands, again with notable exceptions, and have provided wildlife administrators with a politically free governmental organization to manage these resources. And there are reasonably adequate funds (derived solely from hunters and fishermen) to carry out its program.

The hub of Ohio's wildlife administration is a 9-man bipartisan program—and policy-making council. Five of the men serving the council own and operate farms. These men have adopted an operating program which recognizes that—

1. Wildlife belongs to all the people and is held in trust by the state for their benefit. Approximately a million persons participate directly in its use through hunting and fishing alone.

2. Wildlife has great economic, biological and aesthetic value. In Ohio its use creates business activity aggregating approximately $100 million annually and provides employment to approximately 20,000 persons.

3. For the most part, in this intensively farmed, heavily industrialized state, wildlife is an incidental byproduct of land and water use for farms, factories and cities.

4. Costs of producing wildlife, whether by the most efficient methods in hatcheries or by developing habitat, are considerably greater than the cost of producing a comparable unit of domestic livestock. The cost is also in excess of income from hunting and fishing licenses.

5. Successful wildlife production is largely dependent upon practices which fit into management of land and water for crop production, domestic or industrial water supply or timber production.

6. There are real conflicts occasionally between Ohio landowners and sportsmen. Most of the conflicts are social rather than economic and most are subject to solution by reasonable people.

Ohio's goal of a balanced wildlife population for enjoyment of the people is not unlike that of other states except, perhaps, in emphasis on those efforts necessary to meet specific Ohio needs. The essential elements and highlights of this program are as follows:

1. Factfinding. Action has preceded factfinding in wildlife management too often. And too often it has been costly and ineffective. One major effort is to inventory fish and game constantly to establish better the necessary regulations. Fundamental research in both fisheries and game work is subsidized by grants to the Ohio State University and other universities and to creative research undertaken by trained division personnel.

Among the more important of these projects are efforts to develop game birds by long term

Planting multiflora rose hedge on an Ohio farm.

genetic studies to fit the different ecological situations which occur, and a similar program to develop plant material which fits into the farming pattern to the advantage of both the farmer and wildlife. Experimental enclosures are maintained to determine the effects of farming on game and particularly the impact of new practices such as spraying herbicides and insecticides. The plot method of the agricultural experiment station has been borrowed for this type of research and is being widely substituted in this state for the more general observational type of research which has been customary in wildlife studies.

Efforts are under way to develop techniques for balancing fish populations in farm ponds and in the small artificial lakes which are characteristic of our program.

2. Information. Although Ohio has little reason to brag about the size and number of its lakes, the number and size of its public hunting areas, it can and does take pride in the understanding its people have of basic wildlife management. This has not come about by accident but through a persistent effort to keep the public informed of its findings and give it an opportunity to discuss freely and take issue with them. The core of this effort is the annual public fish and game hearing in every county. At these meetings representatives of the state relate the latest findings and answer pertinent questions. Farmer and non-farmer sportsmen are elected to represent the county at a subsequent district meeting where problems of a regional nature are discussed. From this meeting farmer and sportsmen representatives are elected to attend state fish and game hearings, where their recommendations are heard by the Wildlife Council.

The division uses radio, T.V., news releases and a well illustrated Conservation Bulletin. In addition, division personnel are made available to the State Department of Instruction to carry out a conservation program in the public schools and particularly in the vocational agricultural classes. An annual grant is also made to the Agricultural Extension Service to carry out an education program through county agricultural agents, 4H Clubs and extension specialists. By these means the efforts of a few persons are channeled to thousands of classrooms and farmsteads.

3. Management. Managing fish and game is something like coaching a football team from the stands. The coach may know the name and number of every player, have a good team and a good set of plays, but if he isn't in position to direct the play, the ball may take some very funny bounces. Since wildlife is produced largely on land and water used primarily for other purposes, our coaching is in a sense from the stands. Our goal in managing wildlife on such lands is first of all to create and maintain conditions conducive to the manager wanting wildlife present and willing to share its use with others. This is no easy task under our crowded conditions. Despite the irritations caused by a few sportsmen, the great majority of Ohio farmers enjoy wildlife on their farms and willingly share it with those who ask the privilege of hunting or fishing. A study conducted by the division in 1951 indicates that over 60 percent of Ohio farms are open to hunting by permission. An additional 34 percent are open to restricted hunting.

This relatively favorable situation is due, the writer believes, to regulations favorable to farmers. Among these are an enforced law that prohibits hunting without written permission, a late opening of the farm-game season (November 15), short hunting hours (9 a.m. to 5 p.m.), a vigorous educational program urging hunters to respect the landowner's rights, and a recently inaugurated program of acquiring and developing public hunting areas near metropolitan centers. On one of these areas as many as 3,600 sportsmen hunted on 6,000 acres in one day of the 1954 season.

The Division of Wildlife, on the areas it acquires, manages the land under a "farm plan" developed through cooperation with the soil conservation districts, but modified especially to benefit wildlife. Longer than average rotations, with emphasis on long lasting grasses and a minimum of tilled grain crops, feature these plans. Lanes of good wildlife cover connecting cropland, woods, ponds and streams are developed. Wherever feasible, fishing lakes are developed on public hunting projects, thus increasing efficiency in use of the land and assuring better control of the watershed area. Where it is not feasible to develop fishing waters on game lands, lakes are constructed as separate projects.

Ten mobile units are maintained by the Division of Wildlife to aid cooperating farmers. They include tree planting machines, fence building equipment and other tools.

Three new lakes aggregating nearly a thousand acres were constructed by the Division of Wildlife during 1954. These lakes and more like them are planned. To provide good fishing, underwater shelter will be constructed or natural growth flooded. Where it's practical, removal of undesirable fish in the watershed before allowing the lake to fill will be followed. Carefully planned stocking with adapted fishes and regulating the water level are planned. Furthermore, the new reservoirs have built-in structures through which the lake waters can be drained and which hold fish for sorting and restocking when fishing falls off.

Although division-owned and -managed hunting and fishing areas are popular and extremely important, there are not enough of them for our needs. These needs, at least in part, are met by agreements with other land and water management agencies which permit the division to manage the fish and game for public use. The state and national forests, much of the land in Army flood control projects, some of the state parks and lands and waters of the Muskingum Watershed Conservancy District are so managed. Most of the municipal water supply reservoirs in Ohio are under public fishing agreement and are available for year-round fishing.

Ohio farmlands are at once the most important wildlife producing areas and the most challenging management problem we face. Modern farm practices and the tools to put them into effect have reached such a level of efficiency that few wild animals are able to rear their broods successfully on lands in the rotational system or on our well managed pastures. Nesting animals which once escaped the horse-drawn mowing machine by moving into unharvested grain now find the mowing machine following the combine. The broken cornstalks and unharvested nubbins of machine-picked and corn borer infested corn which once provided food and cover all winter now are ground into the land and capped with winter wheat only a few hours after the picker leaves the field.

Fence rows and ditchbank cover, which formerly yielded only to the most industrious of farmers, now wilt under the gentle mist of

"harmless" herbicides applied by a local contractor. The ease with which vegetation can now be brought to ground level, or even prevented from growing, has offset many gains due to conservation measures which restored land fertility. Food without cover is valueless to wildlife and modern conservation farming leaves little cover capable of hiding a rabbit, quail or pheasant over winter or nurturing its brood in summer, however well it protects the soil. Despite these adversities, the only real hope for continued enjoyment of wildlife by the millions of present and future users rests on farmlands.

In Ohio, as in a growing number of states, efforts are being made to get permanent wildlife cover on the land through cooperation with local soil conservation districts. The Ohio Division of Wildlife has executed cooperative agreements with every organized district in the state and assigned 10 technically trained men to a program of wildlife area development on cooperating farms. Through this program there have now been developed on approximately 1,000 Ohio farms areas supporting millions of trees and shrubs, some 220 miles of fence row cover, 6 miles of demonstration woodland border improvement, 280 acres of odd unit development, and protection to nearly a thousand acres of woods.

Obviously, this effort is not enough. It is equally obvious from reflection on the costs that there are not now and undoubtedly will not be sufficient funds from public sources to restore wildlife cover on all farms where it is needed. On the basis of present costs it would take at least $84 million to establish the minimum cover needed on Ohio farms. Under these circumstances we feel that our farm-game efforts must be largely demonstrational in nature. As more economical and more readily accepted wildlife management practices are developed, this situation should improve. Intensive research now underway should reveal such practices at some later date.

The future of farm wildlife in this intensively farmed state is dependent upon more undisturbed cover. Wide corn-row cultivation with inter-planted cover crops, a shift from fall- to spring-grown small grains and greater use of cover crops, such as sweetclover, offer promise for the future.

Wildlife has great reproductive capacity. If agricultural practices of the future are conducive to its welfare, it will thrive and provide hunting and fishing for great numbers of people. If the present trend to manicure every acre with a cutter bar or within reach of a spray boom continues, we can have little hope, regardless of the best intentions and financial resources of any state or federal wildlife agency.

In a time when we are wondering what to do with nearly six billion dollars worth of surplus farm products, it occurs to this writer that a few strands of wildlife cover would improve the landscape, bank some good soil against a future rainy day, restore life where it is now depleted, and perhaps ease the burden of our bulging warehouses.

FACTORS IN DISEASE RESISTANCE.—J. H. Stallings suggests that those genetic factors which impart disease or insect resistance to plants may do so by enabling those plants to produce a more favorable microflora in the soil immediately adjacent to the plant roots. Writing in *Bacteriological Reviews* for June 1954, he notes that the modified microflora in this root area of resistant varieties may be capable of producing antibiotics which destroy or inhibit the disease producing germs, the invading viruses, or the attacking insect pests.

The soil-borne pathogens are destroyed by the antibiotics before they make contact with the roots. Disease germs, viruses and insects attacking the aboveground parts of the plants are destroyed by antibiotics absorbed by the roots and translocated to all parts of the plants in the sap.

BIRD, PLANT AND LAND.—There is a natural affinity between the bobwhite quail, the lespedezas and good land use. And there is one SCS biologist, Verne E. Davison, who is better equipped to write about it than anyone else. As a result, the U. S. Department of Agriculture has just published Leaflet No. 373, "Lespedezas for Quail and Good Land Use." It is a handy, informative 8-pager, attractively illustrated, and available to the public.

Better Tillage for Corn

The author discusses mulching vs. turnplow, rough plowing vs. pulverization, and other practices which bear on the conservation of soil and water and on yields of intertilled row crops.

By W. H. ALLAWAY

SOIL erosion is more of a problem on land cropped to intertilled row crops than on hay lands, pastures, or woodland. For this reason, many conservation farming plans have called for a reduction in row crop acreage. Some farmers have found it difficult to make the reduction in row crop acreage needed in order to bring soil losses down to permissible limits. If a practical way of providing satisfactory erosion control on row cropland can be worked out the job of developing conservation plans and getting them adopted will be much simpler on these farms.

One of the best opportunities to achieve better erosion control in row crops seems to be through use of improved tillage practices. In the Soil and Water Conservation Research Branch, Agricultural Research Service, we and cooperating state experiment stations are making a concerted effort to develop tillage practices that combine effective erosion control with efficiency and high production. Some of the ideas we are working with look very promising, but there are a number of problems yet to be worked out before these practices are ready for widespread use by farmers.

One of the most promising, and yet perplexing, phases of this work is concerned with tillage practices for corn in the Cornbelt, the South, and the East. Mulch tillage, which has worked out well in the Great Plains, has not been quite so successful in more humid areas. In a good share of the experiments where mulch tillage has been compared with conventional turnplow seedbed preparation, mulch-tilled corn has yielded less than corn grown on turnplowed ground. Even so, we still feel that surface mulches of cornstalks or other crop residues merit more attention.

Note.—The author is assistant head, eastern soil and water management section, soil and water conservation research branch, Agricultural Research Service, Beltsville, Md.

No. 3

This is the third of a series of articles to appear from time to time in explanation of the various phases of research being conducted by the Department of Agriculture on problems of soils and water conservation.

We know that surface mulches can help cut down on runoff and soil losses. For example, last summer at La Crosse, Wis., soil and water losses from corn grown with a surface mulch of 2 tons of cornstalks per acre were compared with those from corn grown on a conventional (turnplowed) seedbed. During a 2.46-inch rain on June 20, the mulched corn plots lost .03 of an inch of water in runoff, whereas on the unmulched plots .73 of an inch of water ran off. On July 3 another rain of 1.53 inches fell. During this later rain the corn on the bare seedbed lost .29 of an inch of water in runoff, while the mulched corn lost only .02 of an inch. Thus, during these two rains, the mulch saved a total of almost 1 inch of water. Other comparisons, conducted in different parts of the country, give a similar picture of the value of mulch in preventing water losses in runoff.

Furthermore, there is evidence that, under some conditions, a mulch of plant residues can help cut down on evaporation losses of soil moisture. Results from several locations indicate that mulched plots do not dry out so rapidly following a rain as unmulched plots. In North Carolina, a mulch applied at the last cultivation of corn increased yields by 21 bushels per acre for an average of 8 experiments conducted

in dry summers, and 5.4 bushels per acre for an average of 10 experiments conducted under more favorable moisture conditions. In Ohio, mulches of manure and straw applied to growing corn have been more beneficial in terms of yield in dry years than in wet years.

In the North Carolina and Ohio experiments just mentioned, the mulch was hauled in and applied to the corn after it was up and had been cultivated. On many farms, however, mulching with hauled in materials is not likely to be practical. Our problem is to develop systems of corn production in which crop residues are kept on the surface right through seedbed preparation and planting operations, and still get the advantages demonstrated in Ohio and North Carolina with hauled-in mulch. Since mulches help to conserve water, and corn yields are often limited by lack of water, it should be possible to develop mulch tillage systems of corn production that will outyield the conventional turnplow practices.

Present evidence points to nutritional difficulties and poor soil aeration as important obstacles in the way of higher yields with mulch tillage. Nitrogen and potassium are the nutrients most often deficient in mulch-tilled corn. In a number of field experiments in eastern United States different rates and placements of nitrogen under mulches are being tested in order to work out ways of overcoming the nitrogen problem. Other studies underway are aimed at developing a better picture of the microbiological processes involved in the tieup and release of available nitrogen in mulch tillage systems.

The potassium deficiencies in mulch-tilled corn seem to be a reflection of poor soil aeration. It is difficult for plants to take up potassium from poorly aerated soils. In an attempt to develop mulch tillage systems with improved aeration of the root zone, practices that provide loose, cloddy soil conditions under the mulch, with only a narrow zone of pulverized soil around the seed, are being worked out. The large voids between the clods may provide better channels for the movement of soil air than the smaller voids found in firm pulverized seedbeds.

In mulch tillage for corn following a perennial grass sod, special precautions are needed in order to obtain a good kill of the sod. A technique called "double cut" plowing has worked well for this purpose in Virginia and New York. In this method a moldboard plow with another share or sweep attached to run behind and about 4 inches deeper than each share of the moldboard plow is used. The share of the moldboard plow is run about 3 inches deep and inverts a ribbon of sod. The deeper share, or sweep, then loosens the soil to about 7 inches, and also helps to hold the upper share at a uniform depth. A "TNT plow" has been a satisfactory implement for this purpose. After the inverted sod has been allowed to lie for about 2 weeks, the land is worked with a spring tooth harrow before planting.

Research on conservation tillage practices for corn is not confined to research on mulch tillage. The scheme of planting in the tractor tracks on plowed ground, without discing and harrowing to pulverize the seedbed, is being compared with other systems of tillage in some experiments. This technique has looked promising in the Corn Belt. Workers at the New York Station have developed a scheme in which the planter follows immediately behind the plow. More information about how well these rough seedbeds will take in water and resist erosion on different kinds of soil is needed. It may be that rough plowed seedbeds will be as effective as mulch tillage for soil and water conservation on some soils.

Engineers at the Iowa Station have recently reported on a system of growing corn on contour ridged rows. This system has a lot of promise for slowly drained soils, and for fields where row layouts can be kept close to the truer contour. It and other systems of tillage for corn are being carefully studied in Iowa by a team of soil scientists and engineers of the Agricultural Engineering Research Branch, the Soil and Water Conservation Research Branch, and the Iowa Experiment Station.

In the attack on the tillage problem, comparisons of different schemes of tillage and residue placement on different soils and at different fertility levels are conducted on field plots. The physical properties of the soil, soil moisture conditions, soil temperature, nutrient uptake at different stages of growth, weed control problems, and root growth are studied, in addition to the yield measurements. Promising tillage systems are further tested on runoff plots where

the losses of soil and water can be measured for each rain. Engineers are working on the machinery problems involved. As a result of this work we hope to be able to write a prescription for the ideal seedbed for corn on each kind of soil.

Research on tillage practices for corn is under way in Iowa, Illinois, Nebraska, Wisconsin, Ohio, New York, Maryland, Virginia, South Carolina, and Georgia, in cooperation with the experiment stations in these states. At many of these locations the projects were started by the Soil Conservation Service Research Division. Progress to date has been encouraging.

The research on tillage for corn is a part of a larger program directed toward improving soil and water conservation through better tillage practices for all crops. In another phase of this research, tillage practices aimed at improvement of compacted soils are being developed. We are also studying the problems of establishing grass-legume meadows, using wide-row corn as a nurse crop and tillage techniques for pasture renovation. Research work now under way shows promise of providing a sound basis for future changes in the tillage practices used by farmers.

Throughout the country farmers are becoming increasingly interested in the progress of tillage research. Commercial implements for some types of mulch tillage are available and already in use on some farms. Soil conservation technicians will be getting an increasing number of questions on tillage practices for corn. On the basis of work done so far, mulch tillage seems best suited to well drained soils that warm up rapidly in the spring. Furthermore, mulch tillage works best at high fertility levels, with a good supply of nitrogen and potash being especially needed. Where the corn follows a perennial grass, the double cut plow technique should be used, or else the grass should be killed by thorough discing, as the first step in seedbed preparation. The residues may interfere with the operation of the planter unless special openers, or some other modification, are used to insure that the seed is placed in firm, trash-free soil.

The goals set for our tillage research on corn are high. Methods of growing corn must be developed that prevent erosion and conserve water, and at the same time give as good or better yields than can be obtained with the practices being used now, with less fluctuation from year to year. Furthermore, the new tillage methods should be economical as far as power and labor requirements are concerned, and suited to mechanized farming. We feel that a good research program can reach these goals and that the chances for real improvement in tillage practices for corn look promising.

GAME AND FISH OFFICERS.—Howard Dodgen of Austin, executive secretary of the Texas Game and Fish Commission, was elevated to the presidency of the International Association of Game, Fish and Conservation Commissioners at the organization's 14th annual convention. He succeeds Harry D. Ruhl, game division chief of the Michigan Conservation Department.

Other new officers are: First vice-president, Bruce Stiles, director, Iowa Conservation Commission; second vice-president, Dr. W. J. K. Harkness, chief of the Division of Fish and Wildlife, Ontario Department of Lands and Forests, Toronto, Canada.

Executive Committee—John A. Biggs, director, Washington Department of Game, Seattle, chairman; Frank Briggs, member, Missouri Conservation Commission; Robert H. Johnson, director, Massachusetts Division of Fisheries and Game; Thomas L. Kimball, director, Colorado Game and Fish Department; W. Winston Mair, chief of the Canadian Wildlife Service, Ottawa; Clyde P. Patton, director, North Carolina Wildlife Resources Commission; Harry D. Ruhl, Michigan; and Ernest A. Vaughn, director, Maryland Game and Inland Fish Commission.

Verne E. Joslin of the Minnesota Conservation Department was reelected secretary-treasurer and Carl D. Shoemaker, Washington, D. C., was named to serve again as the Association's general counsel.

HELP WANTED.—A number of specialists in certain agricultural fields are needed to represent the United States in technical assistance programs abroad. The greatest needs are for agricultural engineers who have had experience in the development and use of farm machinery, irrigation, conservation, and machinery repairs; agricultural economists with marketing, credit, land use and farm management experience; horticulturists, especially those with irrigation and citrus crop experience; animal husbandmen, agronomists, and entomologists.

Interested persons who are qualified by training and a number of years of responsible professional experience in agriculture are asked to submit Form 57, Application for Federal Employment, or write to the Office of Personnel, U. S. Department of Agriculture, Washington 25, D. C. Form 57 may be obtained from first-class and second-class post offices.

These calves are sired by purebred Holstein bulls.

WHEN Wayne (Slim) Wenburg took over the stewardship of 1,240 acres of land on Clear Creek near Clearmont, Wyo., he was attempting to do the thing that many young men in this era fail to accomplish. To start from scratch, with little backing except your bare hands and a willingness to work, has been the stumbling block that many young ranchers with less pioneering stamina have found too big to hurdle. A willingness to sacrifice present pleasures for the benefit of future gains has kept Slim going in the face of declining prices and retarded agricultural markets. His wife, Margie, and son, Andrew, have been a steadying influence that has helped prevent discour-

Note.—The author is range conservationist, Soil Conservation Service, Sheridan, Wyo.

Young Man on a Ranch

This is a story of cows and grass, of patient transition from dairying to beef production, and of careful, long-range, scientific planning.

By HARLAN N. TULLEY

Slim talks with Roger Deland, agronomist of the Soil Conservation Service, about the possibilities of harvesting seed from a field of intermediate wheatgrass. Slim uses intermediate wheatgrass, tall wheatgrass, brome, and alfalfa in mixtures for irrigated pasture.

agement from becoming defeat. Andrew is the young man who may some day take over the reins and continue the business of beef production started by his father.

At heart Slim is a beef cattle man. With land and equipment to pay, to enter directly into production of beef cattle was too much to undertake. But Slim believes that if you can't get in the front door, there is an entrance at the back. So he has pursued the policy of producing grain crops to meet expenses, while building up the ranch to produce hay and feed crops and gradually acquiring the beef herd in the process.

Carrying purebred Black Angus cattle on shares one year left him with calves to start the herd. An old horse barn, converted to a dairy barn, provided the facilities to go into the dairy business temporarily. And by breeding the Holstein cows to Black Angus bulls, he got beefy calves. The heifer calves from this cross are being saved to mother beef calves sired by Black Angus. With 12 black calves now produced from this cross and 41 expected this spring, the beef operation is well on the road. Eventually, Slim thinks he will have enough beef production to permit him to drop the dairy end and concentrate on beef produced on native rangeland and irrigated pasture. How long will the transition take? Well, that depends on several things, such as prices of milk and grain, rate of development of irrigated pastures, and other considerations.

In the meantime, a 27-cow dairy herd is producing in excess of 300 pounds of butterfat each per year. The cows are from purebred herds in Wisconsin, and Cache Valley, Idaho. The 1953 average production was 8,822 pounds milk testing 3.7 butterfat, for a total of 326.41 pounds butterfat per cow.

Grain and alfalfa hay raised on the ranch provide the basic ration. About 120 acres of land have been developed for irrigation since Slim took over the ranch. This makes a total of about 300 acres cultivated and hay land. Development has been in cooperation with the Dutch Creek-Clear Creek Soil Conservation District, where the rancher and district representative talk over the needed improvements and decide the order of establishment. Then, the district arranges for technical help from the Soil Conservation Service to lay out the practices.

This field, partially leveled, still has some unevenness, as attested by winding lateral irrigation ditch. It will be leveled further and irrigated by border dikes to achieve maximum efficiency of water use. Note grain stubble left over winter to protect soil. The stubble will be plowed into soil to increase organic matter and build up fertility.

Part of Wenburg herd in windbreak—protected lot used for resting cows prior to milking and at night.

Below.—Equipment used in production of Grade A milk. Sanitation is a prime consideration.

With 60 acres of land in alfalfa, the hay production now meets the needs of livestock feeding. Irrigated pastures are being developed for present and future requirements. About 25 acres in intermediate wheatgrass and 5 acres in Lincoln bromegrass have been supplying summer pasture for several years. A new seeding of 40 acres of intermediate wheatgrass, alfalfa and clover was started in production last year, the seeding being at the rate of 10 pounds wheatgrass, one pound alfalfa, and one pound of red clover per acre. About 70 acres additional irrigated pasture is planned for seeding this spring, in which there will be intermediate wheatgrass with legume on 50 acres, and tall wheatgrass with legume on 20 acres, planted at the rate of 10 pounds wheatgrass and 2 pounds legume per acre. On these new pasture seedings, weeds are mowed while green to keep a clean stand, and only light fall grazing is permitted the first year, so that the root crowns will not be damaged.

About 940 acres of native rangeland make up the balance of the ranch. This is receiving special attention, with the purpose of building it up to highest productive capacity. One reservoir and one pit for stockwater have been built, and another reservoir is planned. New line fences have been constructed and cross fences repaired. The condition of this land has improved from fair to good, as judged by district technicians. This means that proper stocking rates and summer rest have encouraged the taller, more productive grasses to increase and production is now higher than formerly.

Slim figures he now could pasture about 125 head of stock year-round. He would get about 3 months grazing on the native land and the rest on irrigated pasture and feed. The feeding period in this area usually runs about 3 months, which would mean about 125 tons for the period. Eventually, with some 200 acres in irrigated grass-legume pasture and 100 acres in grain, it ought to be possible, he thinks, to build the beef herd up to about 250 head and raise the hay necessary to feed them in winter.

Careful management of irrigated pastures to allow irrigation and grazing in rotation on 4 to 6 fenced pastures can do wonders in forage production. The grass is grazed at its most nutritious stage of growth—quickly, to prevent trampling and wasted feed—then mowed, harrowed, irrigated, and allowed to grow undisturbed until the next grazing period. Fertilization once each spring with nitrate-phosphate fertilizer keeps the grass in top condition for rapid growth. Slim knows this, and is looking forward to the time when he will have the desired pastures seeded and cross-fenced, with black cattle grazing on the lush grass.

With land-clearing, leveling, irrigation development, and pasture seeding going on, in addition to regular farming operations, this ranch is a busy place. At one point on the main ditch where district technicians recommended concrete drops to lower the water to a field head-ditch, Slim went one better. He figured the drops would be expensive and would serve no purpose except to lower the water from one ditch to another without erosion. The intervening land is well sodded in native western wheatgrass, and water would increase the growth of this grass. So he obtained some lengths of 8-inch canvas hose which can be attached to the gate outlet in the ditch and direct water to different parts of the slope. The water drains down the slope and is collected in the head-ditch below. On the heavy sod this procedure causes no erosion and it achieves the purpose of irrigating the grass, thus producing much additional pasture and saving the cost of drop-structures.

Slim is now in his third year as a supervisor of the Dutch Creek-Clear Creek Soil Conservation District. He has relied on the technical advice provided by the district for basic information. The district has provided soils information and engineering help to improve the irrigation by land leveling and ditch realignment, and to improve the heavy soils by crop rotations, stubble mulching, and fertilizer application.

The kind of help that Slim obtained is available to all farmers and ranchers living in soil conservation districts throughout the West, and elsewhere. Many long-established ranches and farms are being improved with this help.

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TO PUSH USE OF LUMBER.—Better Farming Magazine and the National Lumber Manufacturers Association have joined in sponsoring a second nationwide contest designed to spur use of lumber and wood products for farm remodeling and new construction. Cash prizes total $10,000.

Cotton Thrives Following Fescue

Grass-based rotations make progress in Southeast as aftermath of drought experience.

J. P. Anderson, district supervisor, and J. B. Wakefield, technician of the Soil Conservation Service, examining cotton following drought-killed fescue. The cotton made more than a bale to the acre.

By T. S. BUIE

WHEN Joe P. Anderson began planting Kentucky 31 fescue on his farm near Abbeville, S. C., about 10 years ago, it looked as though he "had it made" as far as year-around grazing was concerned.

During the good seasons that followed for several years, Anderson's 60 acres of fescue provided lush grazing for his cattle during late fall, winter, and early spring months when his summer grazing crops such as bermudagrass, annual lespedeza, and kudzu were dormant.

With a winter crop like fescue, there was no need to harvest hay, he figured. And like a lot of other cattle farmers, Anderson was convinced that at last the South had come into its own as a grassland paradise. It was almost too good to be true.

Then came the droughts of 1952-54. Large areas of 2-year-old fescue, seared by the heat and drought of the summer of 1952, turned brown and died. When the rains of late fall and winter failed to revive it, Anderson de-

Note.—The author is state conservationist, Soil Conservation Service, Spartanburg, S. C.

cided the following March to plant 25 acres of fescue land to cotton.

The deep fibrous root system of the fescue sod made the soil a little difficult to turn, but finally this farmer got his land prepared and planted and the cotton came up to a good stand. It grew fast, fruited well, and made the best yields of any cotton in that area during the continuing drought of 1953.

But the dry weather killed off other large areas of fescue on his farm, some of which had been in fescue 5 years or more. Encouraged by the previous year's success, Anderson turned still another 11 acres of this land over to cotton. It was even tougher turning this 5-year-old sod, but he finally got a good job of land preparation done and planted the land to cotton.

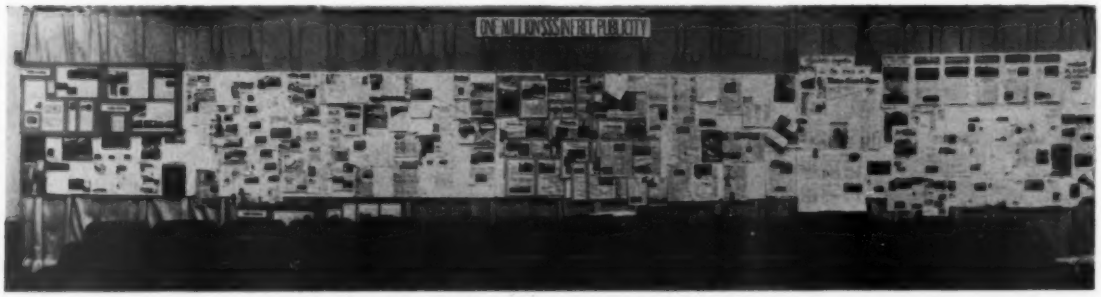
Although 1954 was the driest year in more than half a century in the South Carolina Piedmont, Anderson made more than a bale of cotton to the acre on the fescue sod land, compared with half a bale or less on similar land that hadn't been in sod just across the road.

For a good many years, SCS technicians have been trying to persuade farmers to set up grass-based rotations on their pastures. But it was hard to be convincing when the pastures were thriving during good seasons.

But a lot of farmers, including Anderson, have found out the value of grass-based rotations by accident from the damage done by severe droughts. As a result, such rotations are rapidly coming into favor throughout the Southeast.

Anderson pointed out at the annual meeting of the South Carolina Association of Soil Conservation District supervisors early this year that grass-based rotations have other advantages than that of increasing cotton yields.

"We need grass-based rotations to keep the soil in good mechanical condition, which in turn reduces runoff and stores water in the soil. These good effects help to make a better than normal cotton yield during a drought season," he emphasized. "Grass-based rotations also help us to get rid of noxious weeds."



Display of printed material on sprinkler irrigation.

YES SIR, THAT'S OURS!—You'll have to look mighty close, and use your magnifying glass, but SOIL CONSERVATION Magazine—April 1954—is right on the top row in this display of agricultural publications. It's about eleventh from the right, tree and white fence showing—and somewhere in the irrigated pasture is a sprinkler in full spray.

There were 40 feet of material in this exhibition. And the occasion was the annual conference of the Sprinkler Irrigation Association at Boca Raton, Fla., attended by more than 200 persons.

FRIENDS OF THE LAND.—In March the organization known as Friends of the Land will be 15 years old. Its membership is composed of a wide cross section of citizens who feel they must be kept informed about what is happening to land and water and wish to participate in activities helpful in conserving America's natural resources.

In 1955, according to recent announcement, Friends of the Land will engage in the following events:

Watershed Management Clinic, St. Louis, Mo., April 22 and 23.

Conservation Nutrition and Health Institute, Chicago, Ill., June 27, 28 and 29. Cooperating in this are the Illinois Medical Society and Chicago dietetic groups.

Home Acres Clinic, East Bay Camp, Bloomington, Ill., August 31, September 1, 2 and 3. This is especially intended to be of assistance to persons who have moved to a small place in the country where they confront varied problems in a new environment.

Annual Tour of the Muskingum Conservancy District, in connection with the annual meeting of the society, tentatively October 6, 7, and 8.

This is the Valley of Seed

Sugar Beets on Ray Henning Ranch.

By ROY E. BALLARD

THIS is "the Valley of Seed," thinks the traveler as he arrives at the crest of the Tehachapi Mountains via the Oak Creek Pass and gazes down on the panorama below. He marvels at the sight of field after field of many species of plants being raised for seed production on the valley floor. A few miles farther west, the thrill is twice repeated as Brites Valley and Cummings Valley come into view.

Here a group of enterprising men, by efficient methods of operation and tireless efforts, have transformed a desert waste into a productive area. Sugar beets are being grown on contour for seed production on the Ray Henning ranch, 2 miles east of Tehachapi, Calif., and a luxuriant growth of Goars tall fescue on the Grand Oaks ranch. On an adjoining ranch, operated by the Jacobsen Bros., a planting of Akaroa orchardgrass, is observed.

Wide-awake landowners of this section, such as Claude Botkins, Don I. Carroll, Bud Cummings, C. and W. C. Handel, Ray Henning, J. C. Jacobsen, Jr., Jake Ratzlaff, Ben Sasia, and Edward Schnaidt have projected the task of seed growing to a point where it will gross an income of over a million dollars annually.

Note.—The author is work unit conservationist, Soil Conservation Service, Tehachapi, Calif.

Akaroa orchardgrass on Jacobsen Bros., Ranch.

Goars tall fescue on Grand Oaks Ranch.

Among the leaders in production are the seeds of Akaroa orchardgrass, Goars tall fescue and Merion bluegrass, also, Atlantic, Narragansett, and Ranger alfalfas.

Hulling seed after curing in bundles by stationary thresher, Jacobsen Bros. Ranch.

Portable rig threashing sugar beet seeds in Cummings Valley.

Gleanings of seed from Akaroa orchardgrass more than paid the bill for harvesting and threshing.

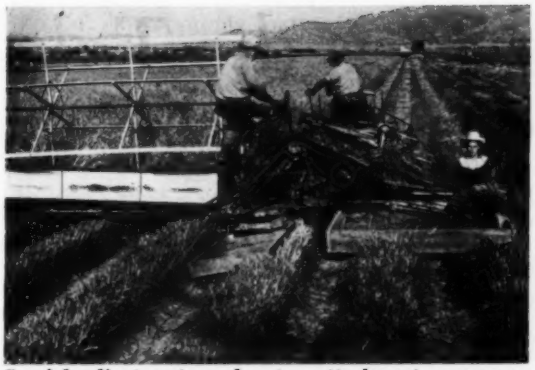
Another crop that has responded to the existing environmental conditions and efficient cultural methods by producing astounding results is the potato. Yields of over 400 sacks per acre are being produced, with many fields of certified seed being developed. The leading variety is white rose. In addition, some Kennebec and new netted gem are grown.

Conservation practices include contour furrow irrigation. By placing the furrows on a contour grade, erosion was reduced and uniform penetration of irrigation water obtained, making possible the more efficient use of water.

A novel means of establishing a seed field was practiced on the Jacobsen Bros. ranch, where small strips of sod were cut from a clean, firmly-grounded planting of Merion bluegrass and transferred to the new site as planting stock. This alleviated much of the weeding problem and produced a medium sized crop of seed the first year.

The harvest is the payoff. As the autumn season approaches, the seed growers keep one eye on the ripening fields of seed, the other being nervously cast skyward for some sign of stormy weather that might cause damage or destruction to the maturing crops.

The same efficiency applied to the production of the crops was made use of in harvesting the product. Man's ingenuity was really brought to bear in harvesting the alfalfa seed. A special windrower was used on the Henning and other ranches, by which the alfalfa was cut and windrowed preparatory to threshing On the Henry Kirschenmann ranch, the next step in the process was being carried out, threshing the windrows of dried alfalfa.



Special adjustments and extra attachments were applied on this standard grain binder to catch the shattered seed of Akaroa orchardgrass.

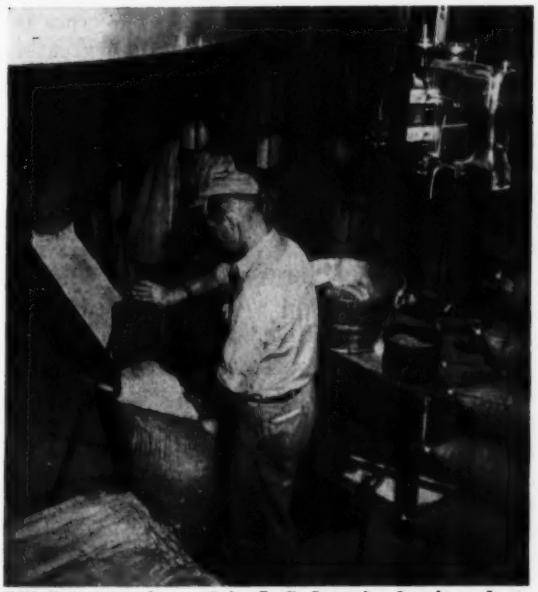
An interesting innovation was displayed on the Grand Oaks ranch, owned and operated by Don I. Carroll. Here special adjustments and extra attachments were applied to a standard grain binder to catch the shattered seed of Akaroa orchardgrass that would otherwise be lost in the reaping process. The gleanings thus gathered more than paid the bill for harvesting and threshing. After curing in the bundles, the seed was hulled by means of a stationary thresher.

Two methods of threshing were generally employed for Merion bluegrass. On the Grand Oaks ranch, the bundles were placed into shocks to dry, then gathered and threshed by a stationary thresher. The Jacobsen Bros. applied a more novel style. The bundles, immediately after cutting, were moved to a central location and placed on a heavy paper spread on the ground. After sufficient drying, a stationary thresher was brought to the site and the seed extracted, any shattered seed being retrieved from the paper.

Still another style of threshing was used by Ben Sasia on his ranch in Cummings Valley. He used a portable rig to thresh his sugar beet seeds, and harvested the astounding yield of over 6,700 pounds of seed per acre.

The seed story does not end when the crop has been harvested and threshed. Then the process of cleaning the seed to prepare a high quality product for the market begins. To accomplish that task, two seed companies have established plants in Tehachapi. After passing through the cleaning plant, the quality product is ready for market.

Special windrower developed for harvesting alfalfa seed, in use on Henning Ranch.



Bill Patton sacks seed in J. C. Loomis cleaning plant.

By efficient methods, tireless efforts and a never-say-die spirit, the ranchers of the Tehachapi Soil Conservation District have made a brilliant record in developing an outstanding seed-producing enterprise. It is one that adapts itself admirably to the conservation scheme of farming.

"FUTURE" IN PRINT.—The need for a stepped-up program of research, education and cooperation in solving America's natural resources problems is stressed in the final report of the Mid-Century Conference on Resources for the Future. The 432-page book is entitled, "The Nation Looks at Its Resources." Using the actual words of hundreds of participants, the book is an open forum, in printed form, on leading issues in the field of natural resources.

Increased Income Tells the Tale

A recent study on dairy farms points to the monetary advantages of a conservation system over a soil-depleting system.

By R. H. BLOSSER

CONSERVATION farming may increase net income in two ways on many farms. One is by getting a higher return on the present amount of labor and capital used. The other is by providing more hours of work and greater use of capital.

When no additional labor and capital were used, conservation farming gave about $475 more net income per farm per year than soil-depleting farming. But when the farmer used 840 more hours of his own or family labor and $2,500 more capital, conservation farming raised net income about $800 more. Both of these increases add up to $1,275 more net income than soil-depleting farming.

These figures were taken from a recent study made on southeastern Ohio dairy farms. This section of the State is hilly, with many slopes ranging from 10 to 30 percent. On many farms one-half to three-fourths of the original topsoil has been lost because of too frequent farming of whole fields in grain crops. Farms in this study are roughly representative of about 15 million acres of land in southern Indiana, southeastern Ohio, northern Kentucky and northern West Virginia.

Information was collected first on farms having conservation systems of farming. Since these two groups of farms differed in size and production efficiency, it was impossible to compare actual income figures and tell exactly how much conservation farming increased net income. Therefore, net income for both types of farming was calculated for a 120-acre dairy farm using crop production data obtained from the farms surveyed.

In calculating net income everything was kept the same except the amount of conservation practices applied. This method of figuring showed differences in income that could be attributed only to the additional crops produced under conservation farming. Cows producing 9,000 pounds of milk for sale were used for both types of farming. But less grain was allowed per cow under conservation farming. Average prices were used for the period 1943-52 to give a better picture of what might happen over a period of time.

Crop acreages on this farm were the same for conserving and depleting farming. By using contour stripcropping no reduction was needed in the acreage of grain crops for conservation farming. Specific acreages were corn 12, wheat 14, meadow 34, permanent pasture 36, and woods and miscellaneous 24.

The following crop yields were used in calculating the amount of feed produced. For soil-depleting farming yields were 46 bushels per acre for corn, 22 bushels for wheat, and 1.2 tons for hay. Yields for soil-conserving farming were 68 bushels per acre for corn, 26 bushels for wheat, and 2.5 tons for hay. These yields were averages for the soil-depleting and conserving farms contacted in this study.

Soil-depleting farming included red clover and timothy meadows, no contour stripcropping or terracing, small applications of lime and fertilizer on the cropland, and no permanent pasture improvement. Soil-conserving farming included alfalfa-grass meadows, contour stripcropping, and liberal applications of lime and fertilizer on the cropland and permanent pasture.

Soil-depleting farming showed a net income of $2,810. But conservation farming gave $3,285 with the same amount of labor and capitol as used under depleting farming. That's an increase of $475, or 20 cents per hour for all labor used. Most of this additional income resulted from higher corn yields because of contour stripcropping, alfalfa-grass meadows, and heavier applications of fertilizer. With this

Note.—The author is associate professor, Ohio State University, Columbus, Ohio.

limited labor supply, only about two-thirds of the meadow crops under conservation farming could be harvested and fed. The rest had to be plowed under because there was no dependable market for hay.

Conservation farming required 840 more hours of labor and $2,500 more capital than depleting farming when all forage was fed to dairy cows. When this extra labor was supplied by the farmer himself or his family, net income was $4,085. That's a further increase of $800 for the additional labor used. If the farmer hired this additional labor he could still net about $300 more than if he adopted conservation farming and used only the amount of labor needed for soil-depleting farming. He would receive 95 cents per hour for labor that could be hired for 60 cents.

Some farmers might not be able to take advantage of both methods of increasing net income under conservation farming. For example, if a farmer had cows producing 5,000 pounds of milk instead of 9,000, he could not afford to hire labor to use the additional forage produced under conservation farming. Five thousand pound cows would give an hourly return of only 40 cents. But hired labor would cost 60 cents an hour. With low-producing dairy cows, increases in income from conservation farming would result principally from using present labor more efficiently unless the farmer worked harder himself.

Contour stripcropping is one of the conservation practices which help to increase net income.

Old Roads in Vermont

By

WILLIAM BREYFOGLE

"An old road invites to reflection."

This article is taken from a recent issue of *The Land* by permission of Russell Lord, Editor, and the author.

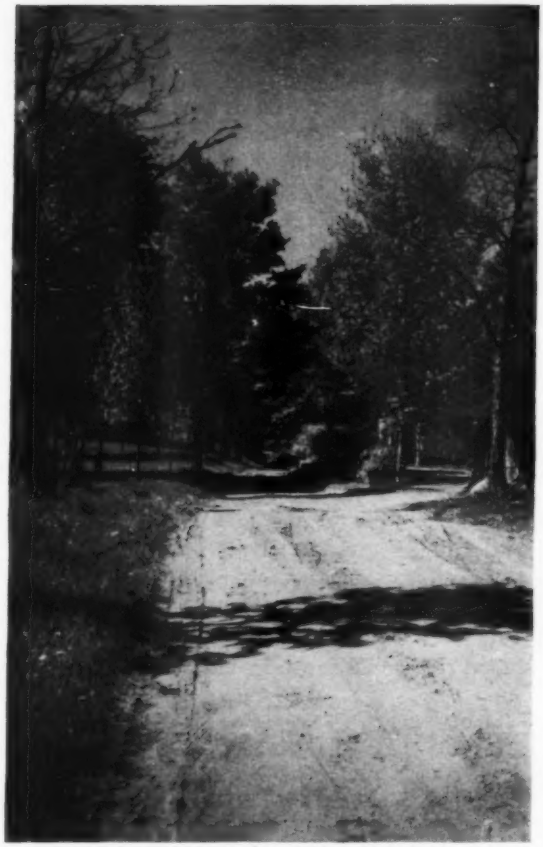
NOT many of the things men make endure longer than roads. For nearly two hundred years the green growth of the Alleghenies has tried to hide the 12-foot track that General Braddock's engineers cut, on their way to death in the wilderness, but there are still places where the old way may be traced. Less famous thoroughfares have just as long a life. The settlements they once served may have disappeared and the houses that were scattered along

them may be nothing but cellar-holes now, but the roads themselves persist.

So far from being only discarded and forgotten relics of the past, they are very busy places, with no suggestion that they mourn their vanished builders and the human traffic that once moved along them. The creatures of the woods resort to an old road for the strip of sunlight it offers. On ledges of rock and on the old walls at the roadside snakes like to bask. By day, partridges use a bare patch of gravel for dusting, and whip-poor-wills come by night. On the road, as on the fields of the deserted farms along it, berry bushes are quick to encroach. Birds come to eat their fruits and rabbits for shelter amid their thorn-set canes. The strong light brings butterflies.

It seems certain that animals with a good deal of traveling to do find the old roads a convenience. Deer must wander extensively in search of pasture, and foxes in search of prey. Here in Vermont, most of the early roads followed the courses of streams, and the easy grades that pleased the first human settlers may recommend them to the deer, as well. They offer easy access to water, too, and because even the most timid animals must drink at times, foxes find good hunting near the streams. So do skunks, moving with the assurance of those who are uniquely endowed.

The historian, no less than the natural historian, may find his account along one of these abandoned roads. It will speak to him of the westward drift of the nation, the opening up to settlement of Ohio and the lands beyond Ohio, which drained away much of the population of the older East. The mood of the men who gave up these holdings was not always defeat, but often hope and adventure. And when they moved, they took a good deal of Vermont with them—the tenacity that could wring a living from thin soil and a hard climate, the wry humor that met adversity halfway and robbed it of much of its sting. Women going to the raw homesteads in the Mississippi basin took with them roots of favorite plants, and yellow roses and red peonies from Vermont bloomed again in Indiana and Illinois—as if an army withdrawing from a hard-fought field had taken with it the flags under which it proposed to fight again elsewehere.



"A good place to keep an appointment with the spring."

The people did not all go at once. On some winter night a fire piled incautiously high burned a house down. Because all the life of the lilacs by the door had drawn back into the deep roots, they grew up again when spring came. But the house was not rebuilt, and there was one house less on that stretch of road. Other farms changed hands two or three times, but grew no more prosperous. A childless old couple died within a few months of each other, and their empty house sagged and sank in upon itself. Grass crept over all but the wheel-tracks in the road, and the neighborhood got a name for being backward and unlucky. Nobody wanted to buy property up that way. One family, setting out for the banks of the Scioto, did not trouble even to close the door behind them. Porcupines moved in and gnawed the woodwork of the empty rooms.

An ecologist would see nothing melancholy

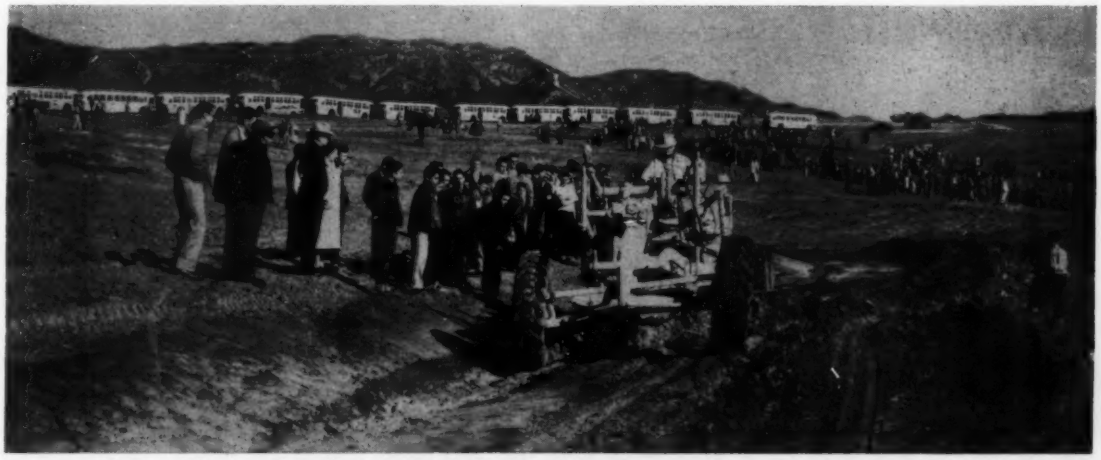
in this supersession of humans by one of the most slow-witted and sluggish of the rodents. It was something predestined, implicit in the nature of the land. Men can and do live in hostile environments, in deserts and high mountains and arctic wastes. But the fortitude and ingenuity thus displayed are admirable only when they are necessary, not when the hard life is deliberately chosen or persisted in. When it became possible to live better in Ohio, the humans acted wisely in turning over their Vermont farm to the porcupines. The gesture of leaving the door open may have been unconscious, but it was none the less appropriate.

There was nothing tragic about the human withdrawal, and nothing flaunting about the advance of the woods to undo the work of men with axes. The transition was effected with no hard feelings on either side. The wild things had no wish to obliterate all traces of those who had once dwelt among them.

The old road is a good place to keep an appointment with the northern spring. The March sun puts high color in the twigs of willows at the foot of a rise and brings bloodroot into bloom beside a stone wall. Crows cry in the new season. A dozen of them will circle and clamor above a fox trying to slip unnoticed through the undergrowth. A little while and female skunks will be gathering rolls of dry grass to line a burrow from which a woodchuck has been dispossessed. There in the darkness the kittens are born, and emerge presently to look for the first time on the advancing sun and awaking earth. The bark that porcupines eat is sweet now with rising sap. Buds swell on lilacs and the gnarled apple trees that have outlasted houses and barns. On a day late in March, even an old road seems to put on youth again, to have a part to play still and good title to its share of the sun.

An old road invites to reflection as a new and busy road never does. That it has been abandoned may seem a proof of the vanity of human effort. But in fact it goes to prove that no check need be final, that beyond Vermont there is always an Ohio. What is immortal about any road is the quality of hope and endeavor that first cut it through the woods. So long as these persist, what happens to the physical road matters very little. At its best, it could never be more than a crude translation of the dream and the purpose that shaped it. All roads worthy of the name lead somewhere beyond meeting, mill and market, and even an abandoned road is one stage on that longer journey.

DEMONSTRATION.—A highlight of the last meeting of the National Association of Soil Conservation Districts was a small-watershed demonstration (see picture) at the Camp Pendleton, Calif., Marine Training Base.



Motor grader, working on diversion terrace, is inspected by the younger set. In foreground are some of the district leaders for whom the demonstration was staged.

A hedge of multiflora rose.

OLD IDEA STILL GOOD.—Proving again that there is "nothing new under the sun," it has come to light that a rose "living fence" was in use even before the U. S. Department of Agriculture was established. This fact has been found in the official report of the Commissioner of Patents on Agriculture for the year 1855.

Paul Bangham, work unit conservationist for the Soil Conservation Service, recently acquired this book and found, under the heading of "Live Fences," an interesting letter from Athens, Ga. It reads, in part:

"The single McCartney rose I found on farms makes an excellent fence. It was planted 4 to 8 feet apart with paling and wire supports, and by layering and trimming the bottom shoots, in 3 years it will repel every intruder."

Now, 100 years later, there are 34½ miles of multiflora rose fence, planted by the Ohio Division of Wildlife, on the farms of 36 cooperators of the Madison Soil Conservation District.

FISHERIES ELECTION.—The American Fisheries Society at its 84th annual meeting elected A. L. Pritchard of Ottawa, director of conservation and development for the Canadian Department of Fisheries, as its new president. He succeeds Fred A. Thompson, fisheries chief of the New Mexico Game and Fish Department.

G. E. Sprecher of the Wisconsin Conservation Department was elevated to first vice-president and C. F. Pautzke, chief of the division of fishery management of the Washington Department of Game, was elected second vice-president.

E. B. Speaker, superintendent of the Department of Biology, Iowa Conservation Commission, Des Moines, was re-elected secretary-treasurer; Howard A. Tanner, Colorado A. & M. College, Fort Collins, continues as librarian.

SWAMPLANDS STRESSED.—The theme of next National Wildlife Week will be "Save America's Wetlands!"

National Wildlife Week has been sponsored annually for 17 years by the Federation and affiliated organizations in the various states. The 1955 dates were March 20-26, encompassing, as usual, the first day of spring.

Although the Federation says the general purpose remains the same—to get more people thinking, talking and doing something about conservation—specific resource objectives have been emphasized in recent years. Last spring the theme was water pollution control. In 1952 and 1953 the nearly extinct Florida key deer and the endangered prairie chicken were singled out for special attention.